

ELECTRA

5-6 DÉCEMBRE 2024

HOTEL VILLA MASSALIA,
MARSEILLE | FRANCE

18^{èmes} journées françaises
pratiques de rythmologie
& de stimulation cardiaque

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**Centre Hospitalier Régional
Universitaire de Lille**

ABLATIONS DE TV ET D'ESV DIFFICILE LES ESV DE PILIER

**Pôle Cardiovasculaire et Pulmonaire Hôpital
Cardiologique**

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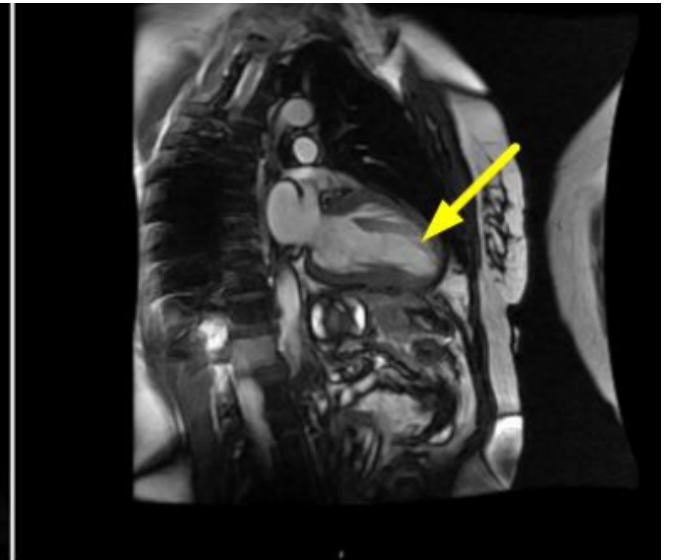
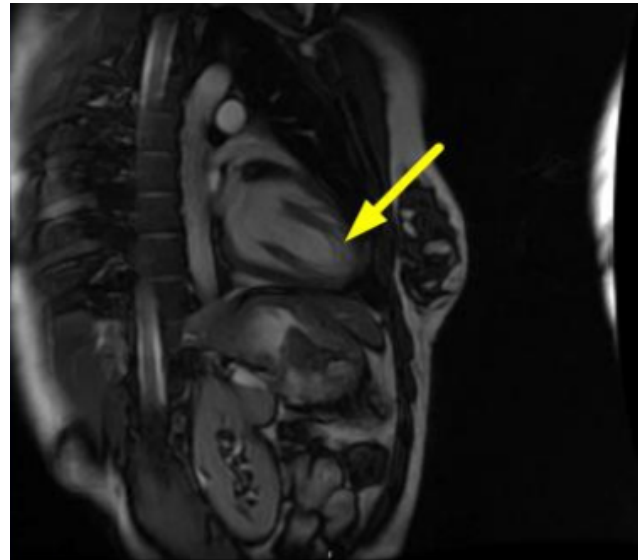
PAS DE CONFLIT D'INTERET POUR CETTE PRESENTATION

**Pôle Cardiovasculaire et Pulmonaire Hôpital
Cardiologique**

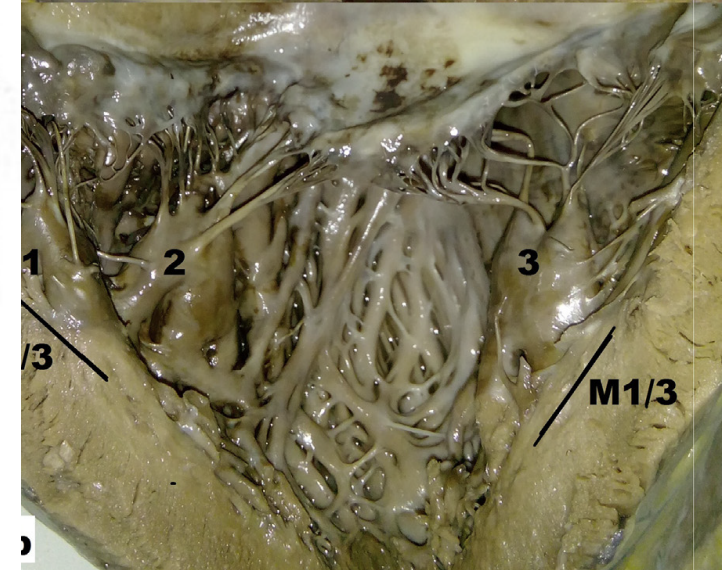
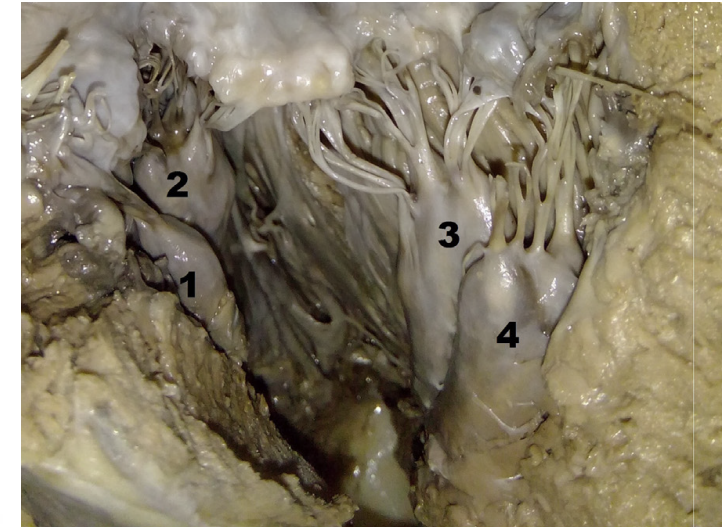
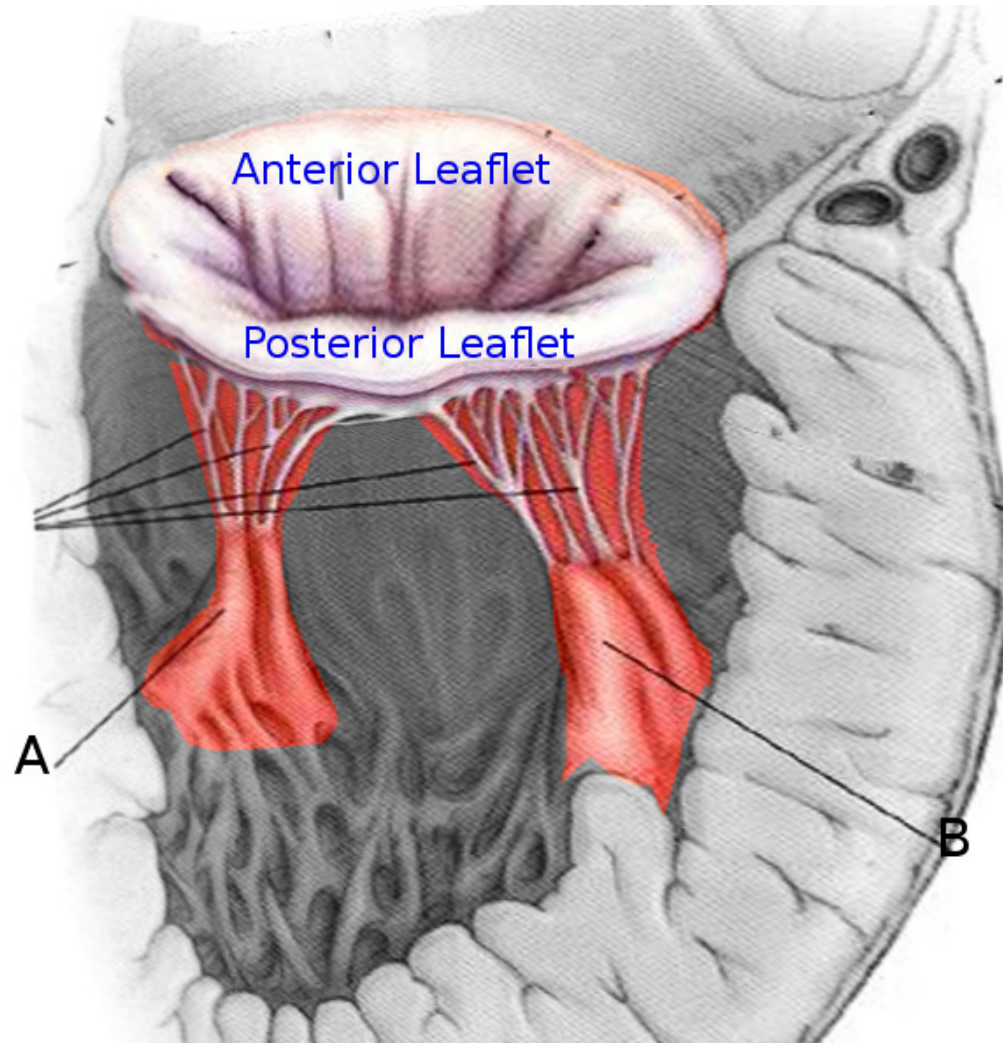
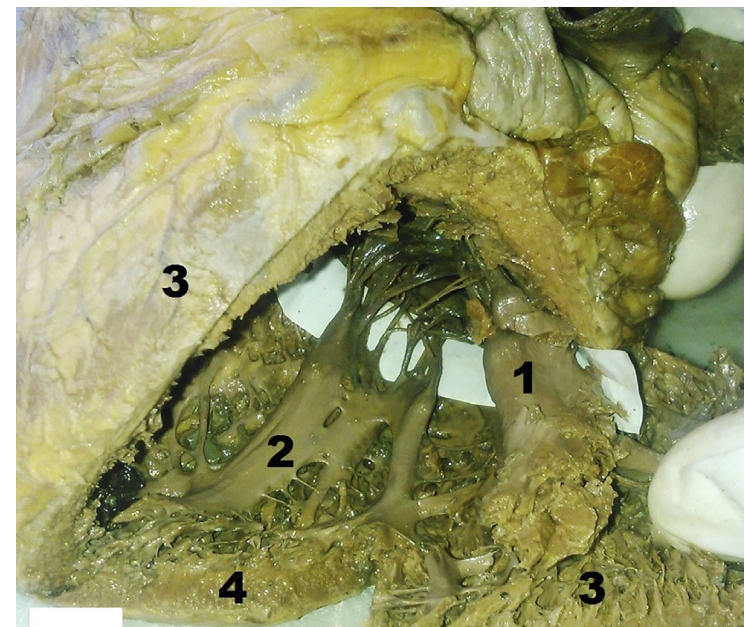
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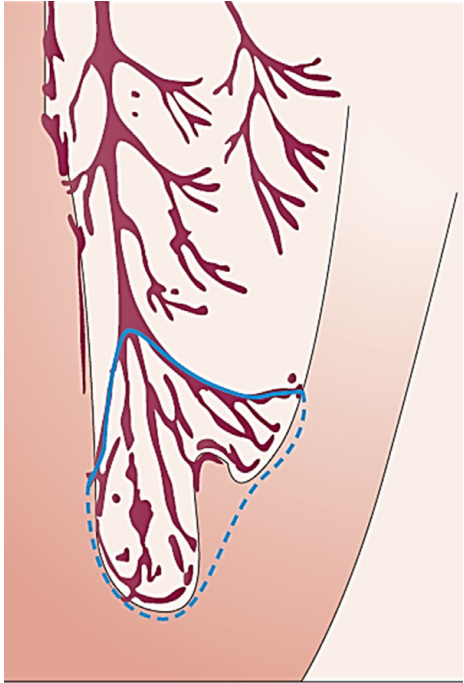
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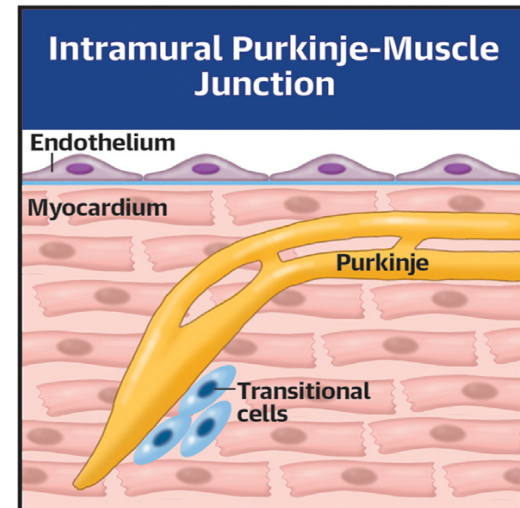
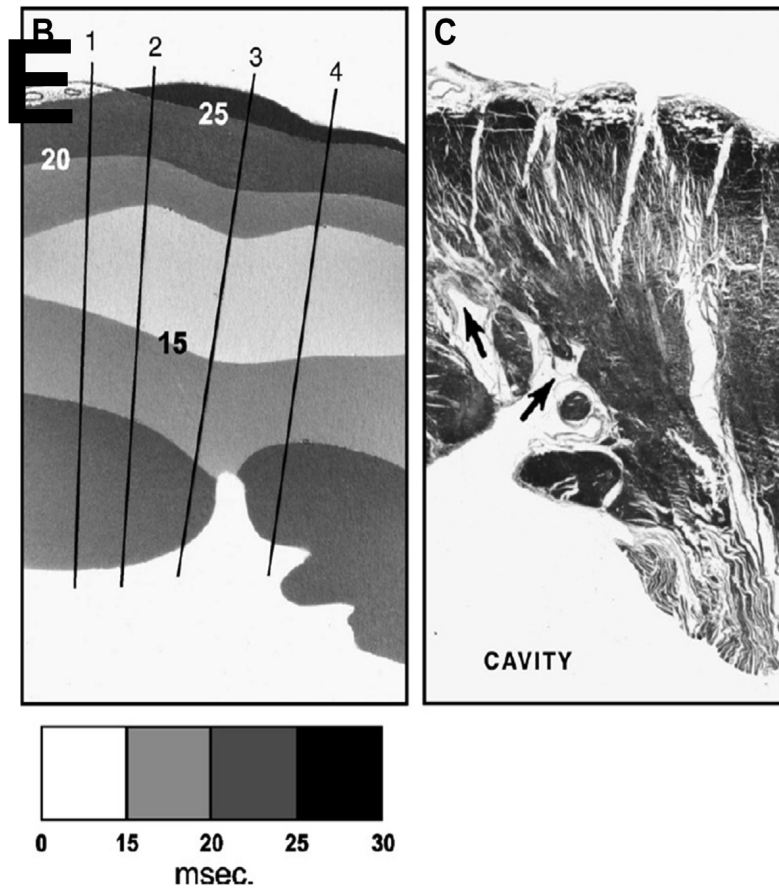
ANATOMIE



LE RESEAU DE PURKINJE



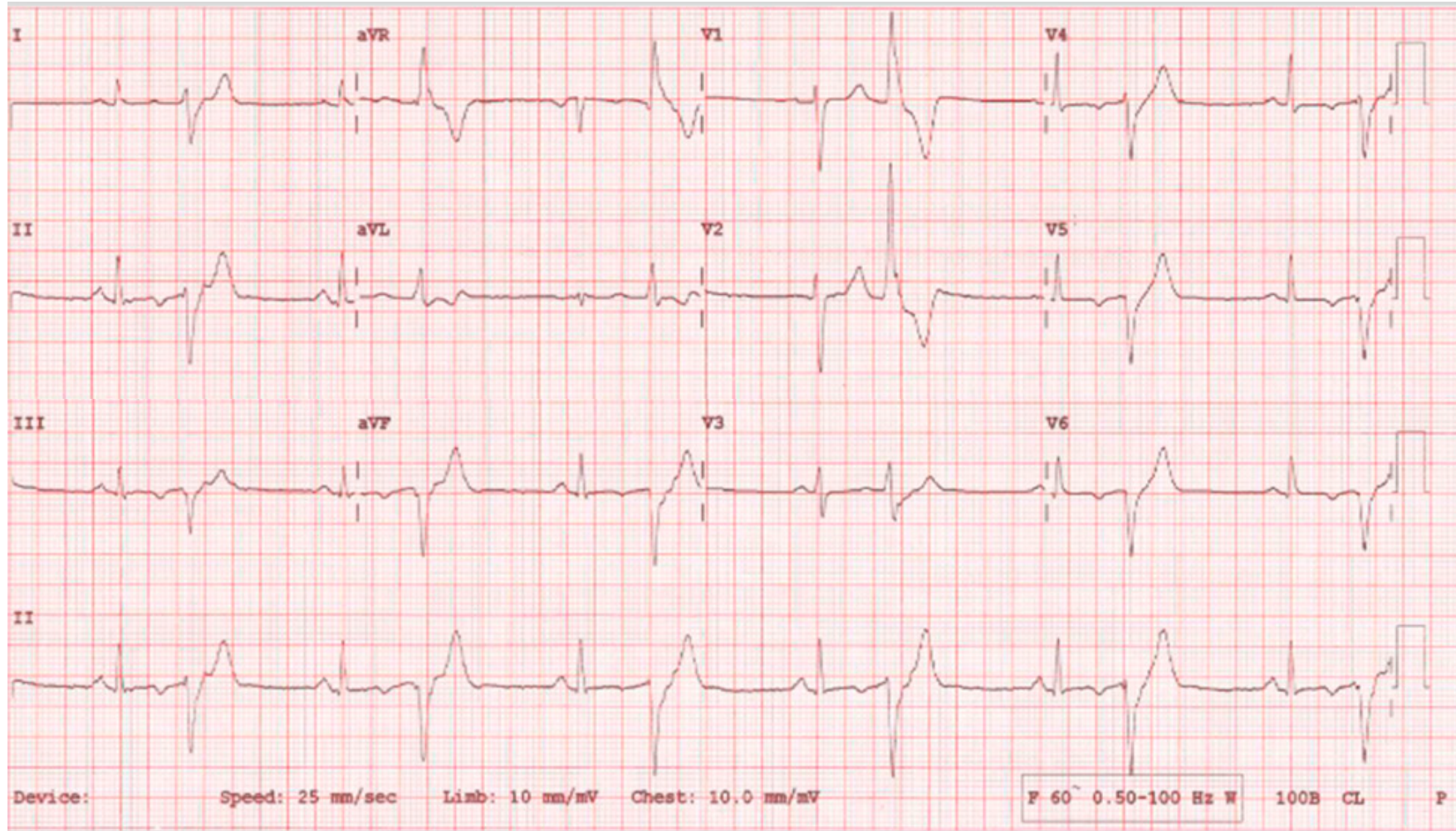
50% de pot PKJ
A la base



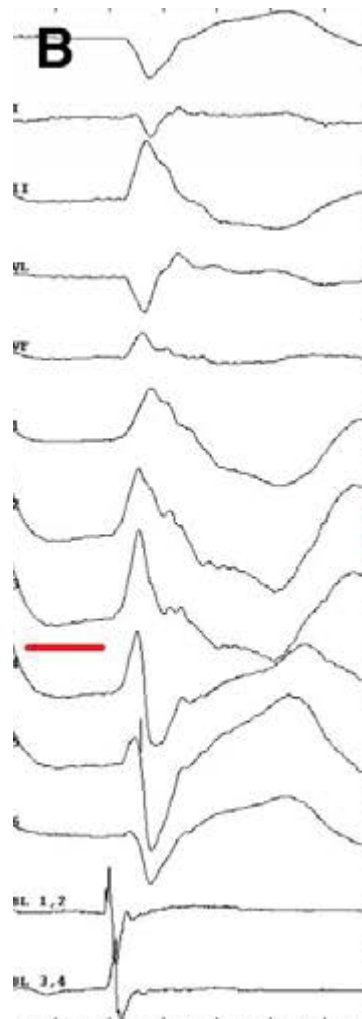
Komatsu Y et al *Circ Arrhythm Electrophysiol.* 2016;10:e004549.

Nogami A, et al. *J Am Coll Cardiol EP.* 2023;9(10):2172–2196.

ECG

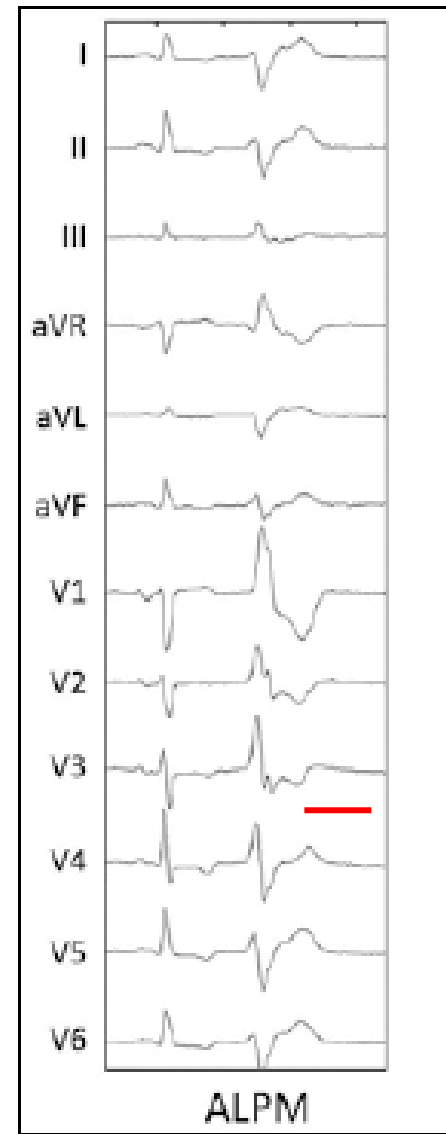
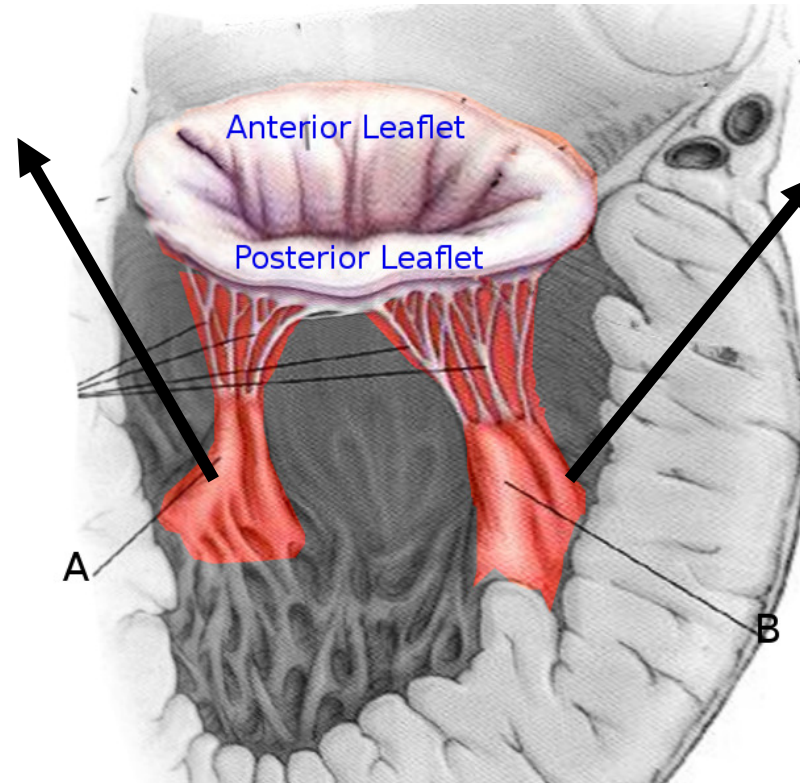


ECG



AXE supérieur

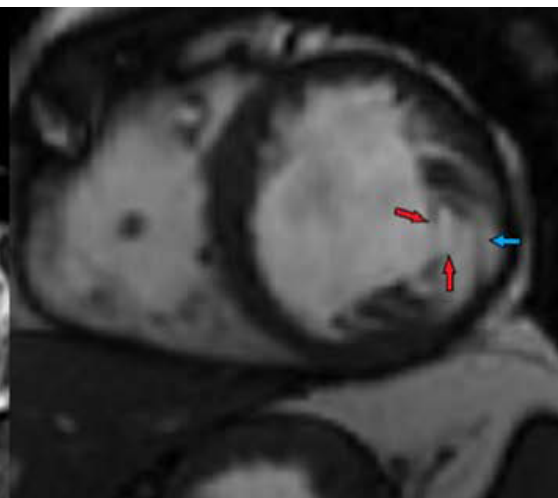
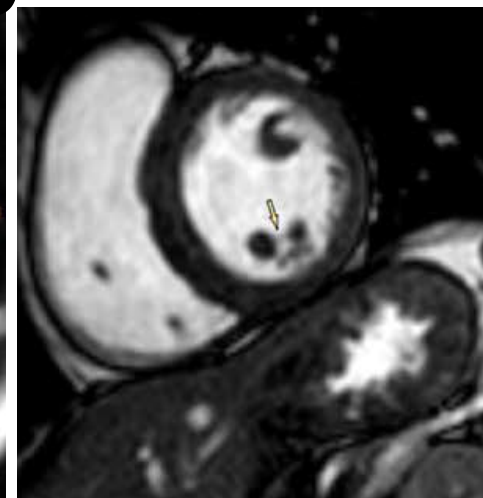
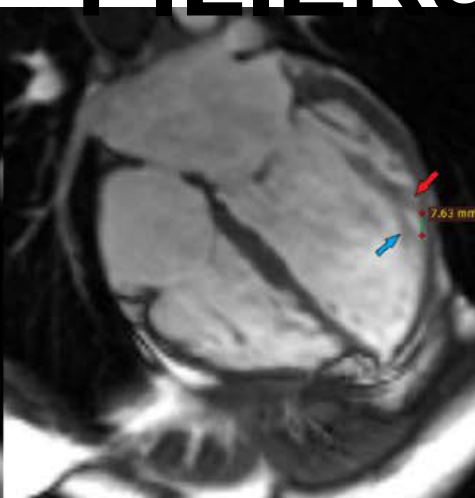
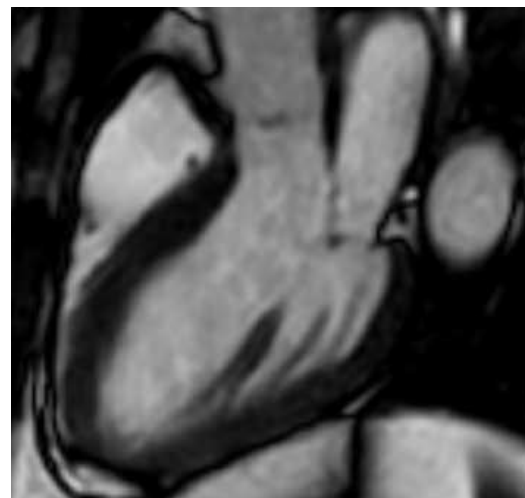
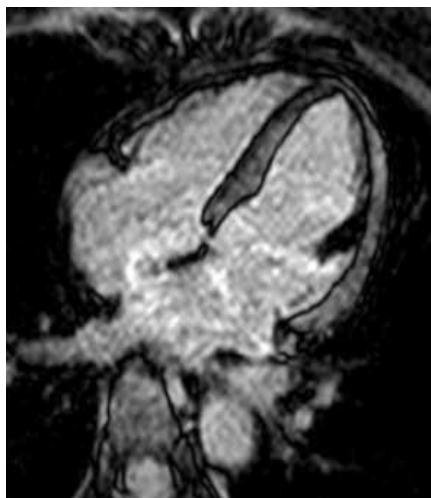
TRANSITION V2/V3



AXE inférieur

TRANSITION V3V4

CONNEXIONS MUSCULAIRES INTER ET INTRA PILIERS

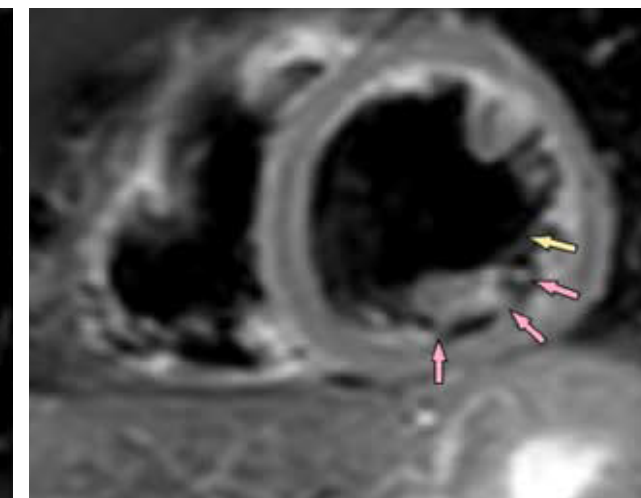
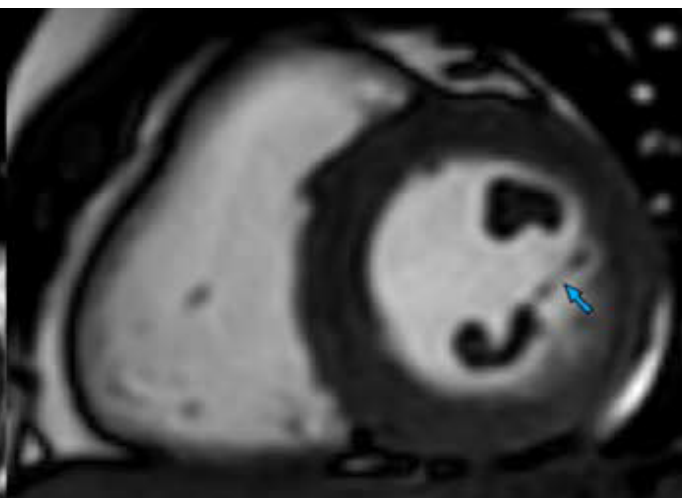
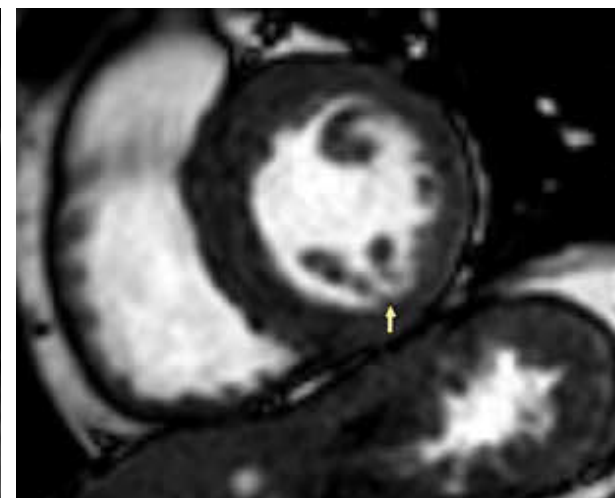
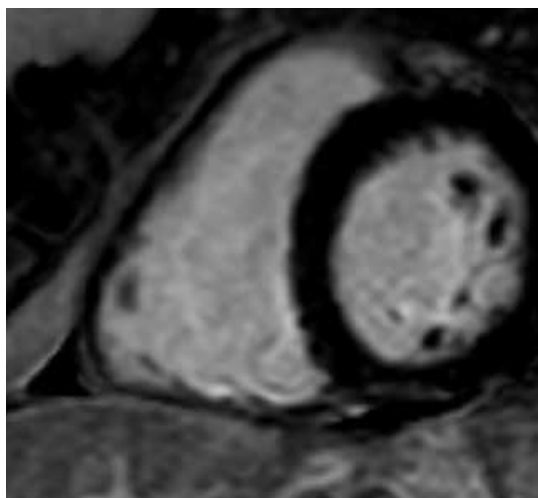


Type 1a

Type 1b

Type 2

Type 3a



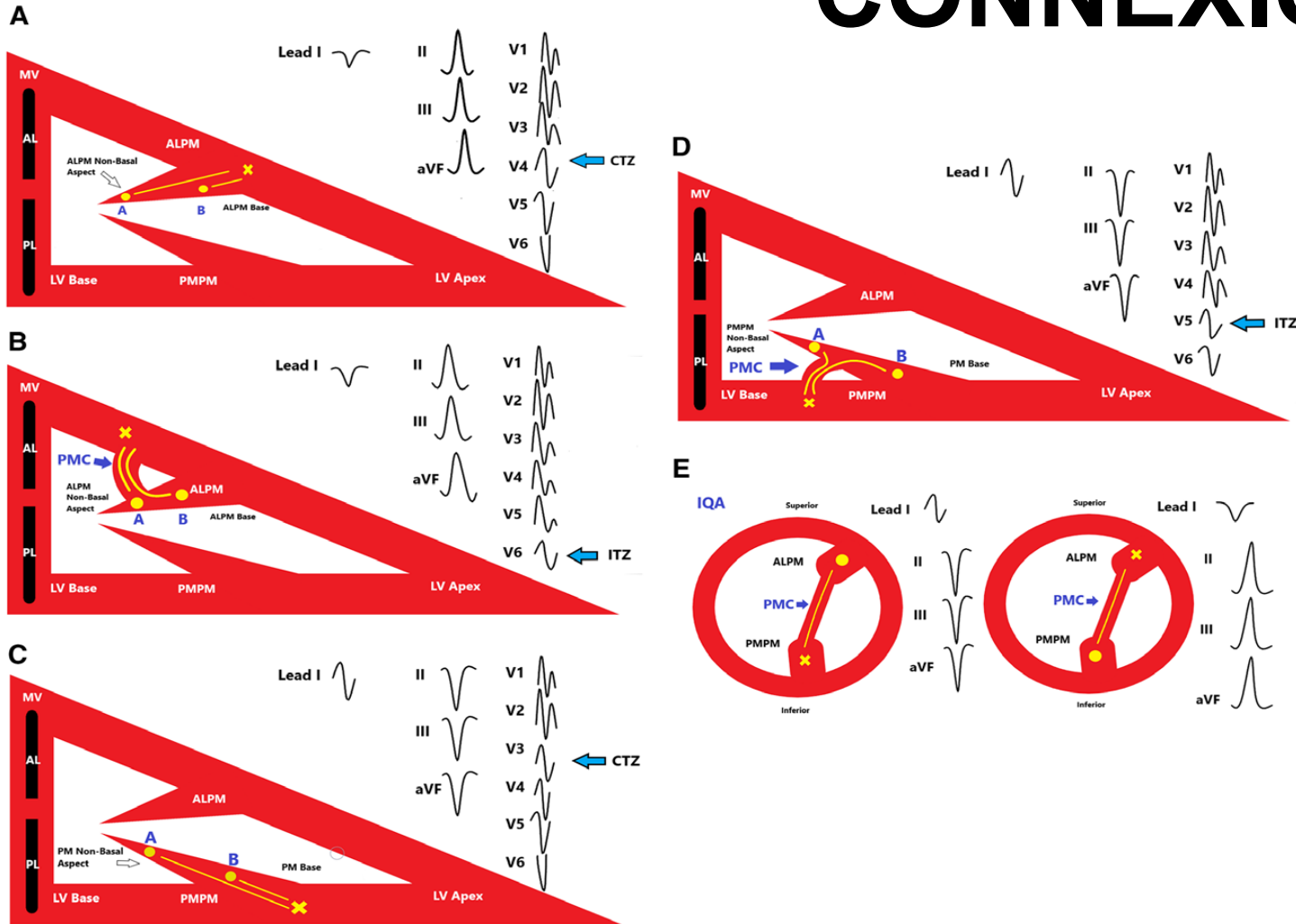
Type 3b

Type 4a

Type 4b

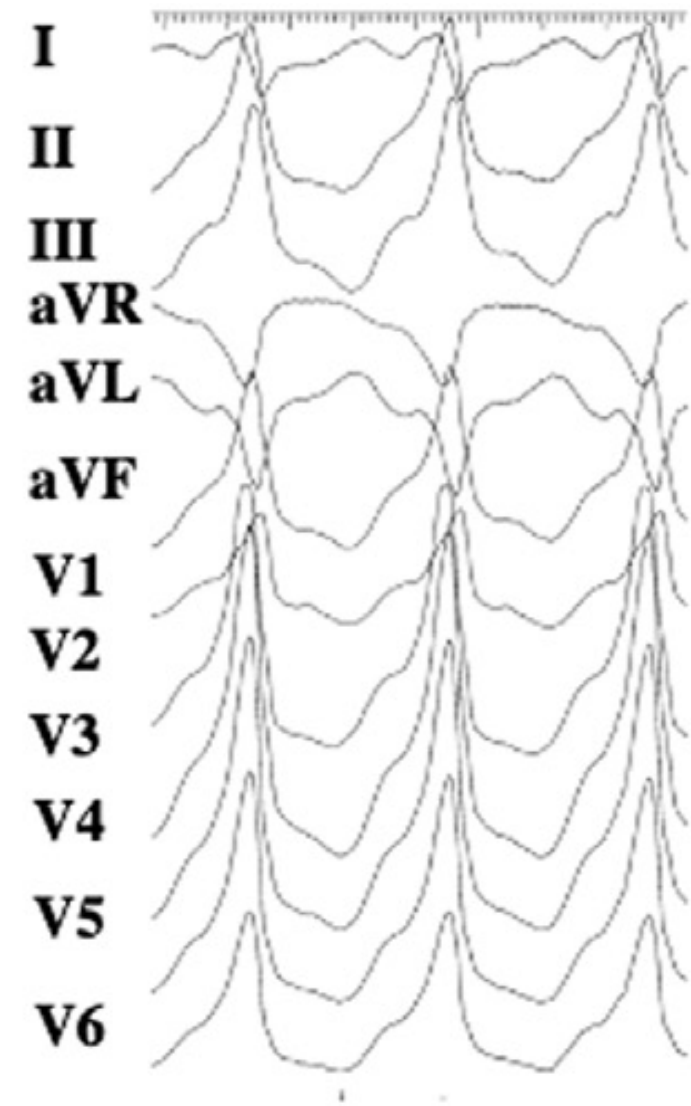
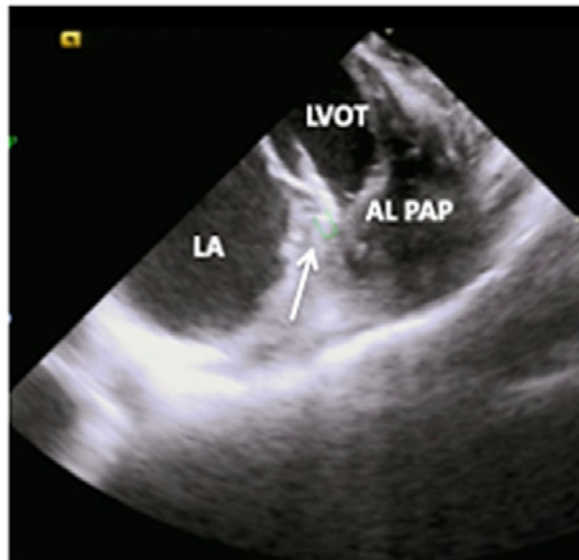
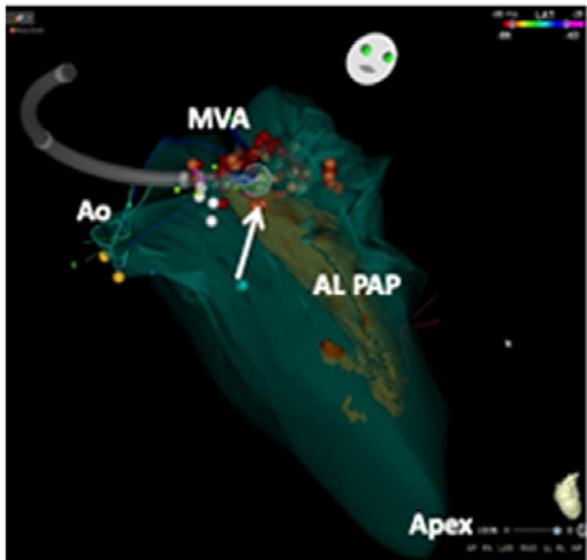
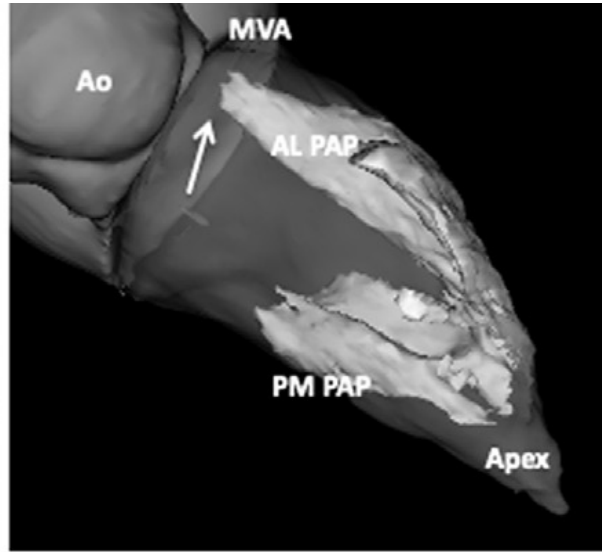
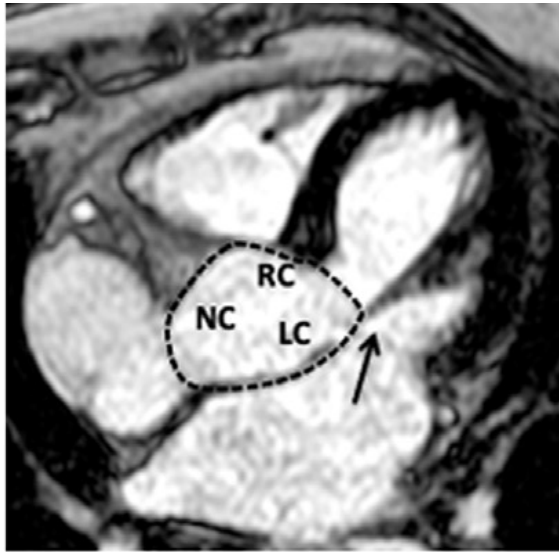
Type mixte

MODIFICATIONS ECG PAR LES CONNEXIONS



- Connexions très fréquentes
- Transition du QRS et axe prédisent la localisation de l'ESV
- Associées à un taux de récurrence + imp

EXTENSION DU PILIER A LA VALVE



RESULTATS INITIAUX

- 40 patients avec charge importante en ESV

symptomatiques

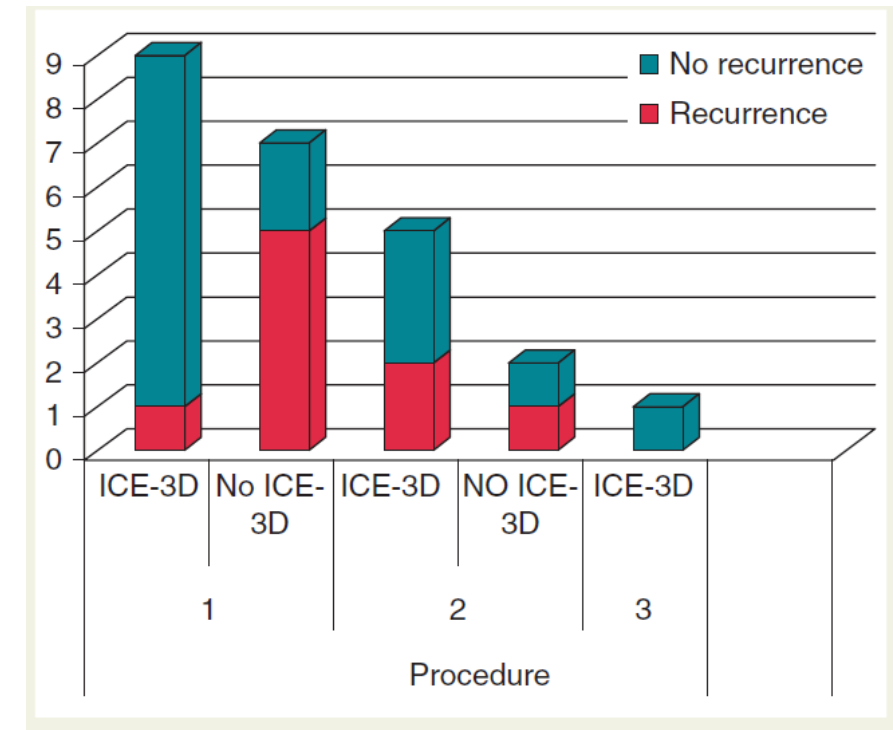
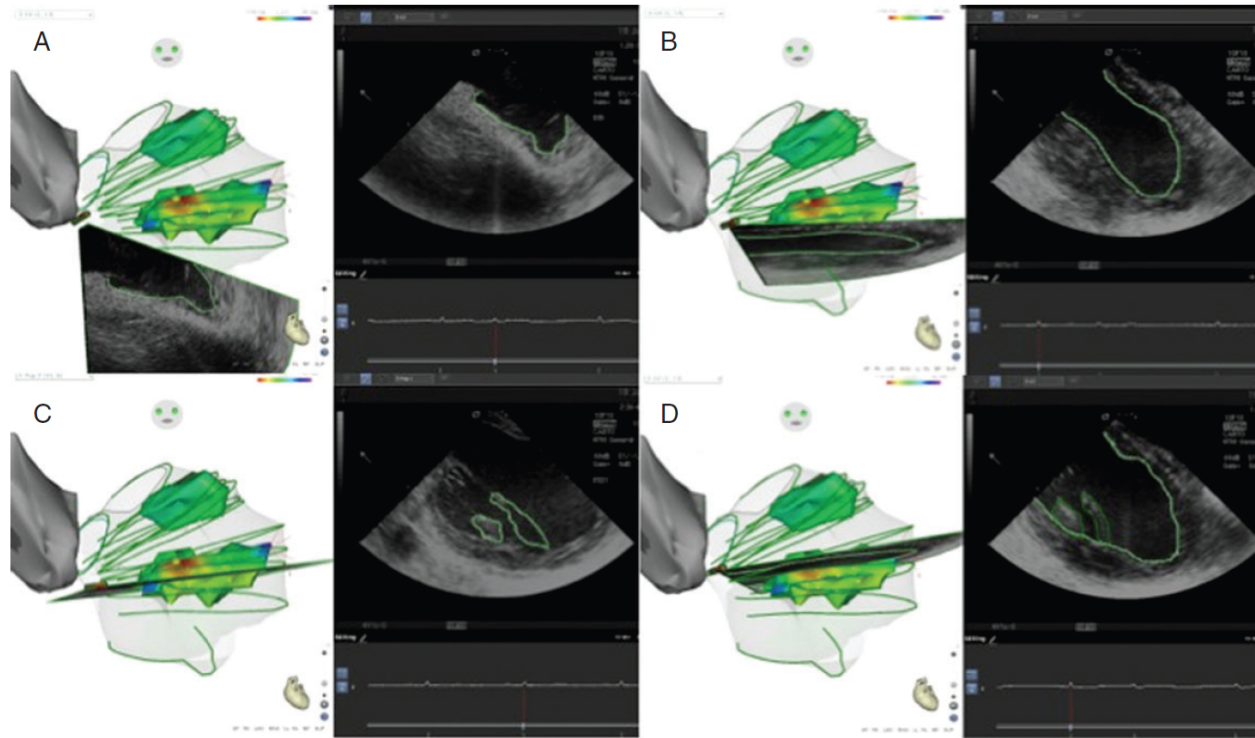
- Procédures en Carto simple, carte en LAT

- Succès en aigu 78% avec disparition des ESV

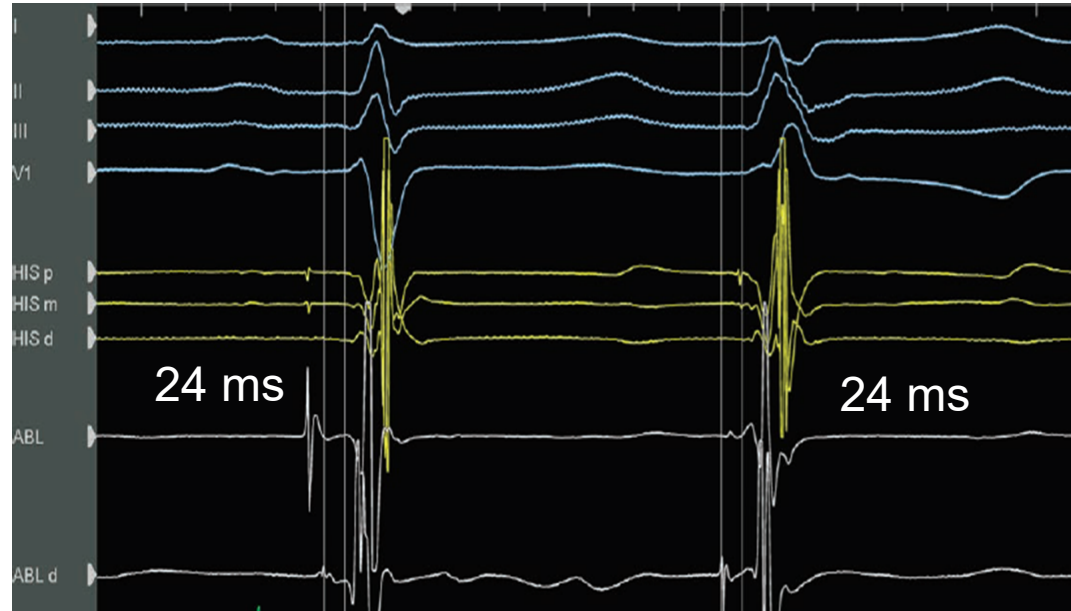
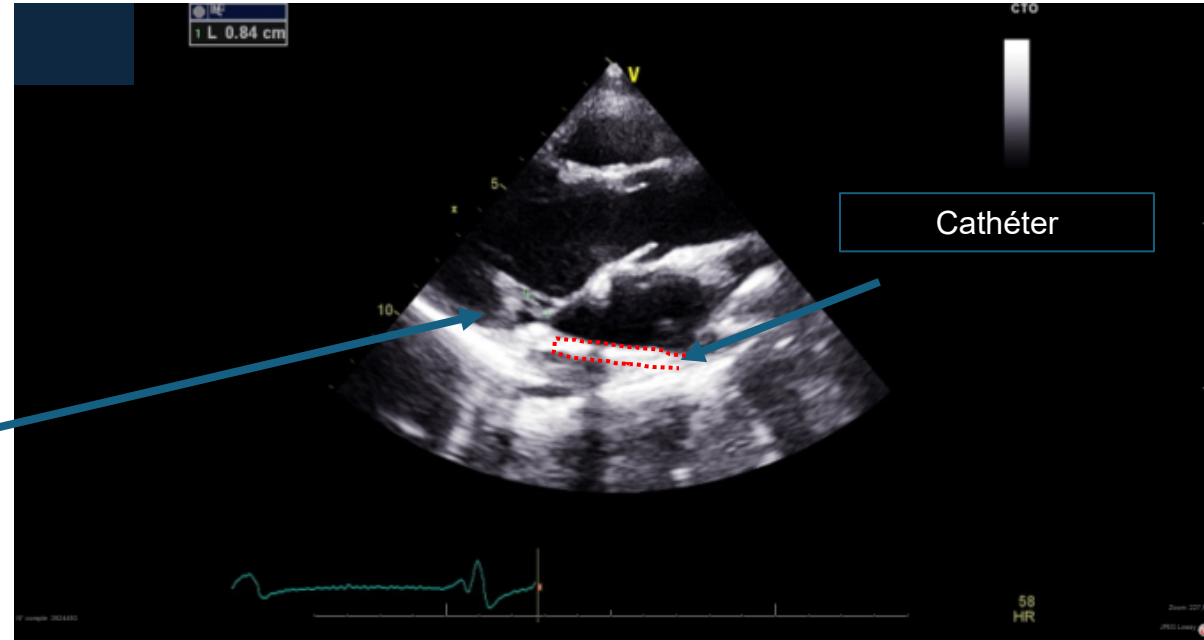
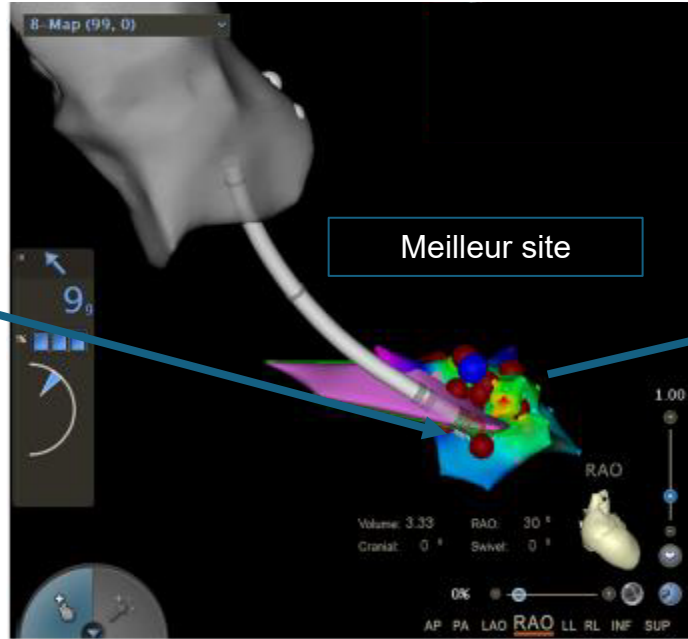
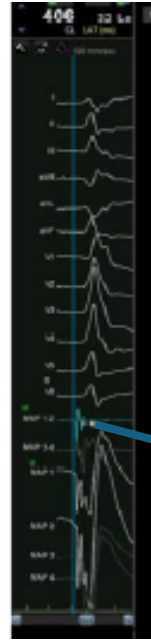
(notamment si pot de PKJ, si ESV traitée sur une petite

COMMENT AUGMENTER LE SUCCES DE PROCEDURE? ECHOLOGIE INTRACARDIAQUE (ICE)

	Acute success rate	Long-term success rate
All ICE-guided procedure	86.9%, 95% CI 79.3%–92%, $p < .001$, I2 0%	74.2%, 95% CI 65.5%–81.3%, $p < .001$, I2 0%
Not all ICE-guided procedure	90.1%, 95% CI 82.2%–94.7%, $p < .001$, I2 0%	61.2%, 95% CI 45.8%–74.6%, $p = .153$, I2 18%

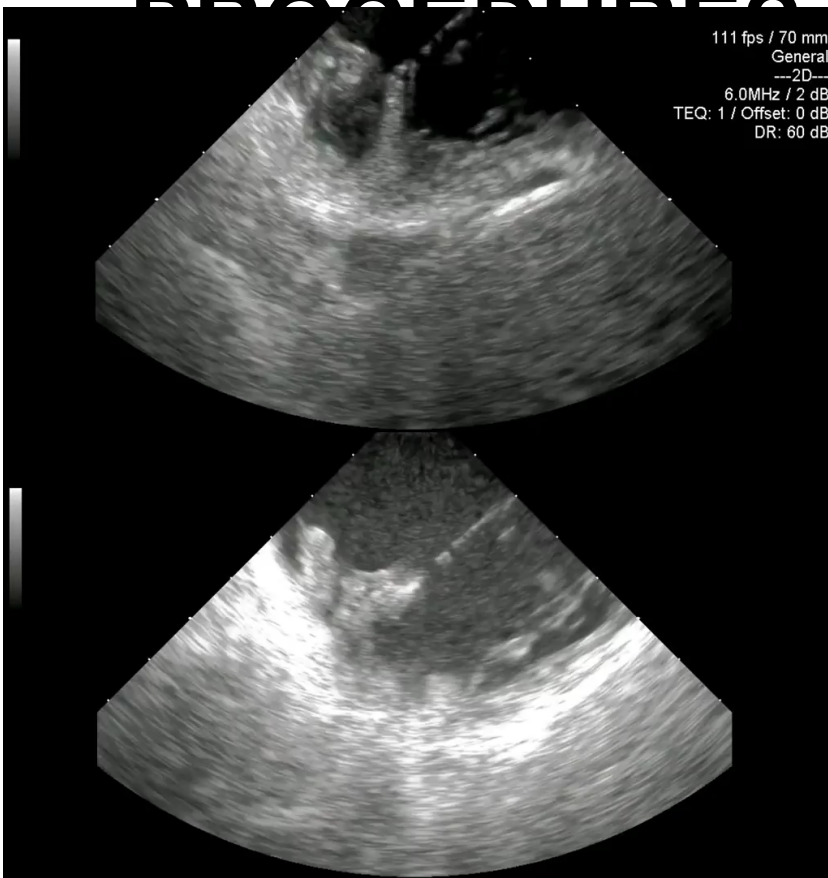


COMMENT AUGMENTER LE SUCCES DE PROCEDURE?



COMMENT AUGMENTER LE SUCCES DE

PROCEDURE



Patient no.	VT/PVC	PVC/VT site of origin	Approach with cryocatheter	No. of cryo lesions	Total cryoenergy time, s	Acute outcome with cryoablation
1	PVC	LV AL	RA	13	2940	Acute termination
2	PVC	LV AL	TS	3	1080	Acute termination
3	PVC	LV AL	RA	4	720	Acute termination
4	PVC	LV AL	TS	16	3161	Acute termination
5	VT	LV AL	RA	9	2160	Acute termination
6	VT	PVC1: LV AL ALPVC2: LV AL	RA	5	1200	Acute termination (PVC1), Decreased burden (PVC2)
7	PVC	LV PM	RA	11	2080	Acute termination
8	PVC	LV PM	RA	0	0	Unsuccessful
9	PVC	LV PM	TS	14	4200	Acute termination
10	PVC	LV PM	RA	10	2400	Acute termination
11	PVC	LV PM	TS	8	1056	Acute termination
12	VT	LV PM	RA	7	740	Acute termination
13	PVC	RV	RV	2	360	Acute termination
14	PVC	RV	RV	6	1168	Acute termination
15	VF/PVC	RV	RV	6	1080	Modification of coupling interval
16	PVC	RV	RV	13	2340	Acute termination

Uniquement des patients (16) en échec de RF pour défaut de contact ou instabilité

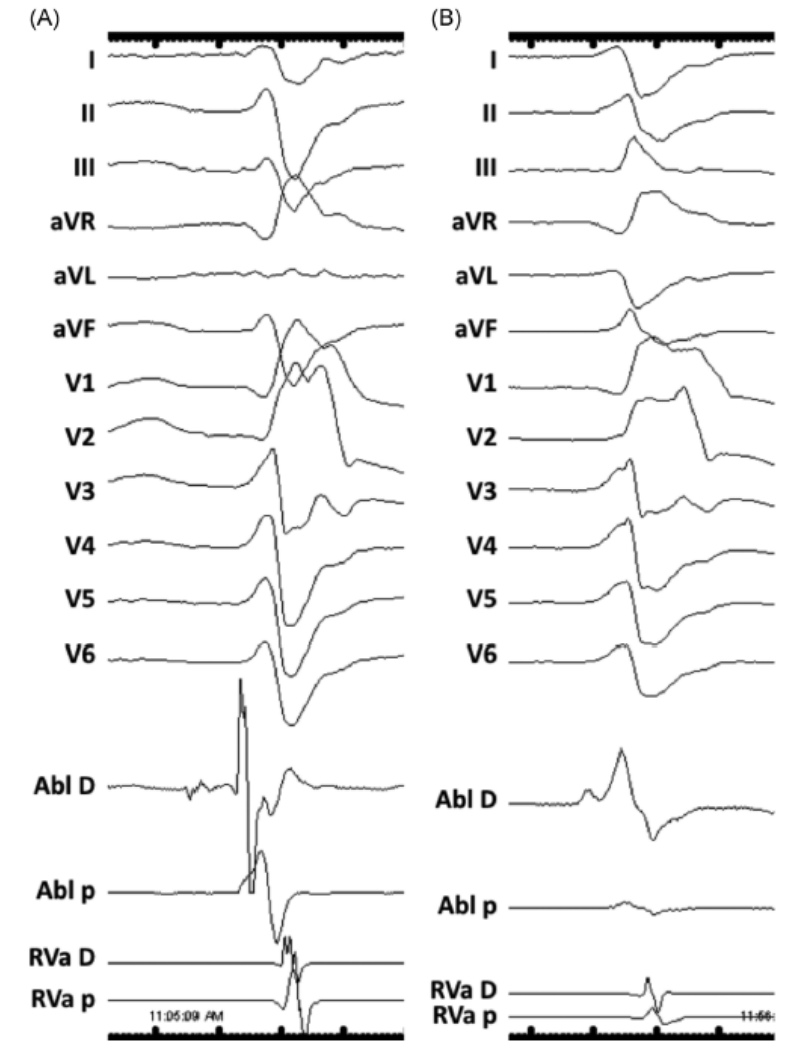
LA CRYOTHERAPIE

COMMENT AUGMENTER LE SUCCES DE

PROCÉDURE

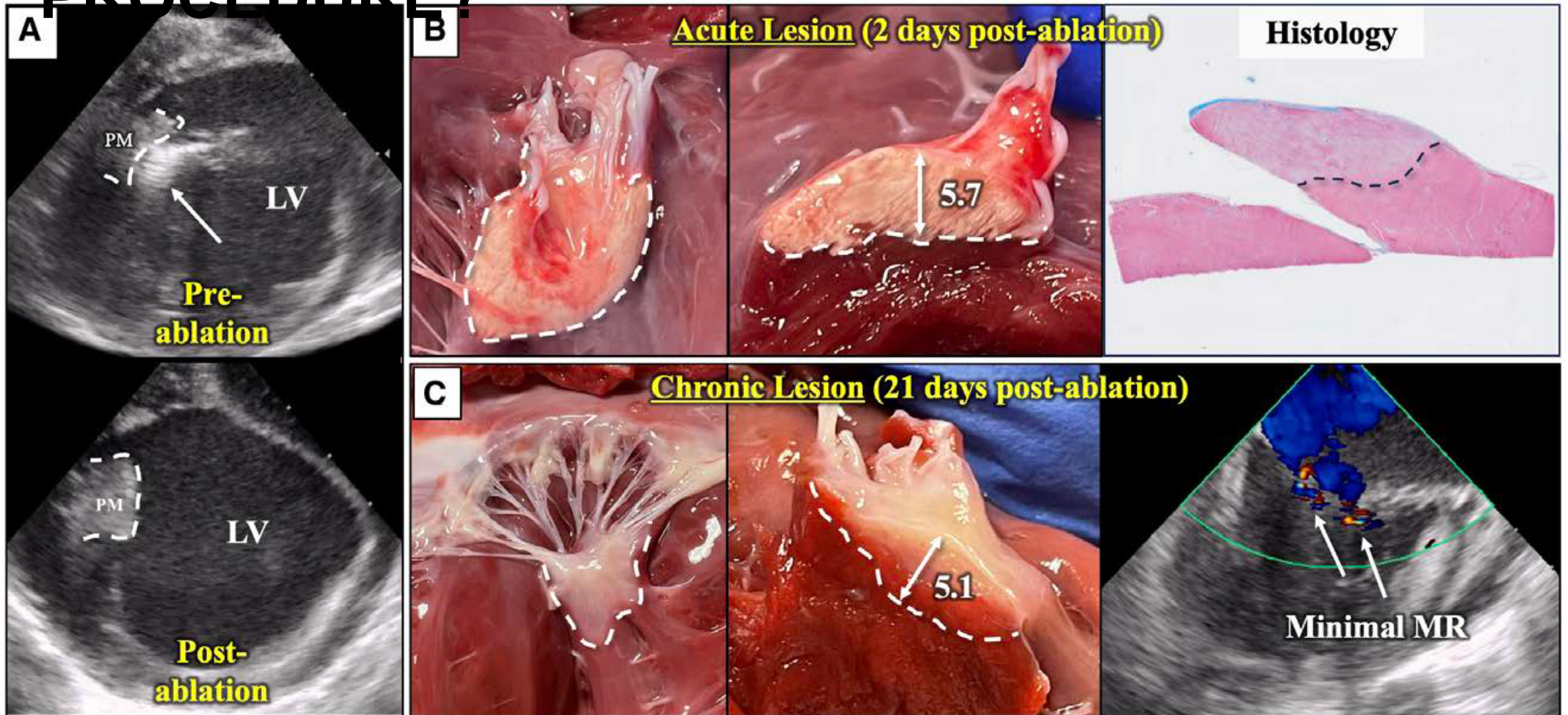
Patient no.	Age	Sex	Arrhythmia	Follow-up duration, mo	VA burden on follow-up Holter	AAD at follow-up
1	25	M	PVC	13	<1%	None
2	63	F	PVC	12	Patient reported no symptoms, declined Holter	None
3	68	M	PVC	2	<1% of PM PVC (total 7.1% burden of multiple different non-PM PVCs)	None
4	61	M	PVC	1	<1%	None
5	47	F	VT	1	<1% on Holter, no further VT on ICD interrogations	None
6	48	M	VT/PVC	12	No further VT on ICD interrogation	None
7	67	M	PVC	15	<1%	None
8	59	F	PVC	n/a ^a	n/a ^a	None
9	51	M	PVC	1	<1%	None
10	66	M	PVC	12	<1%	None
11	68	M	PVC	1.5	<1%	None
12	19	M	VT	1	<1%	None
13	76	M	PVC	1.5	<1%	None
14	43	F	PVC	19	<1%	None
15	53	F	PVC-triggered VF	1	<1% PVCs; no further VT/VF	None
16	61	F	PVC	1	<1%	None

- Une dissection Ao par voie rétro
- Une FV pdt le tir

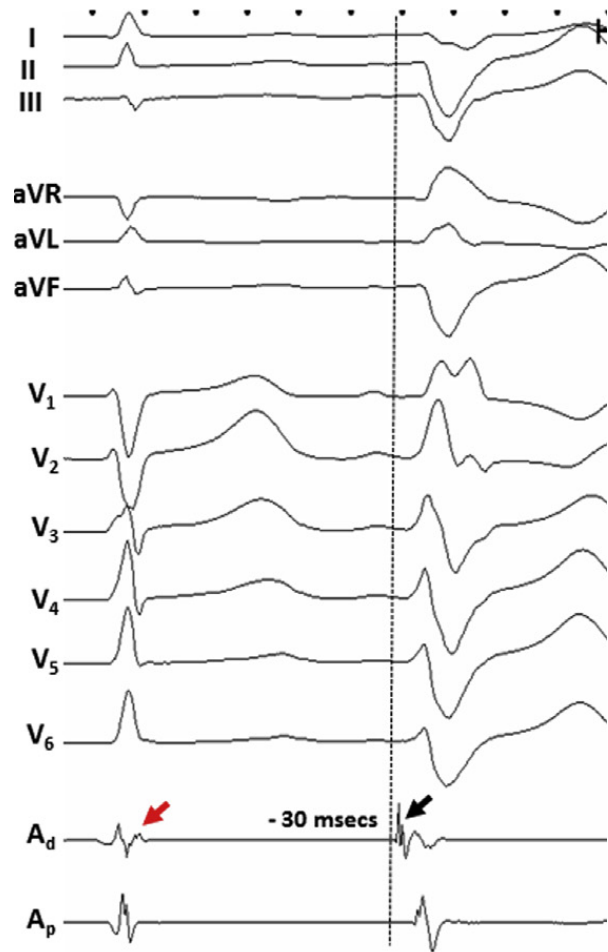


LA CRYOTHERAPIE

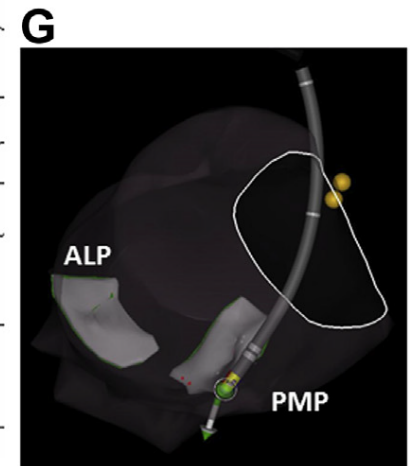
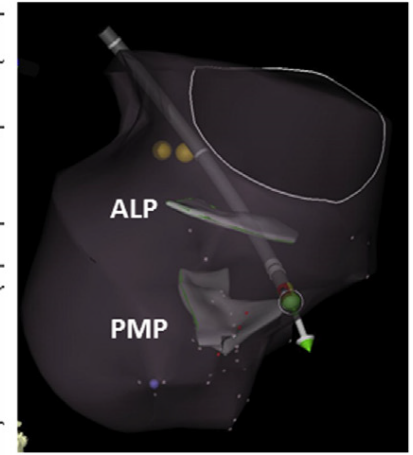
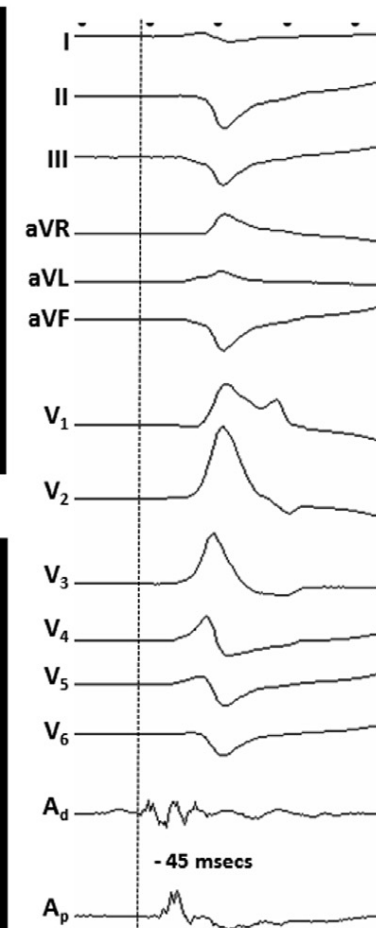
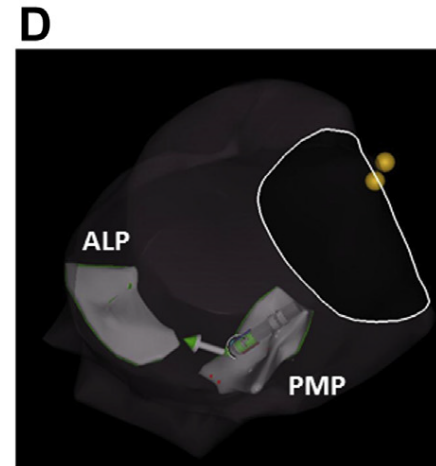
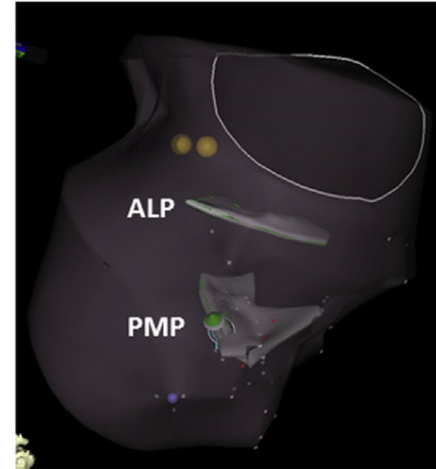
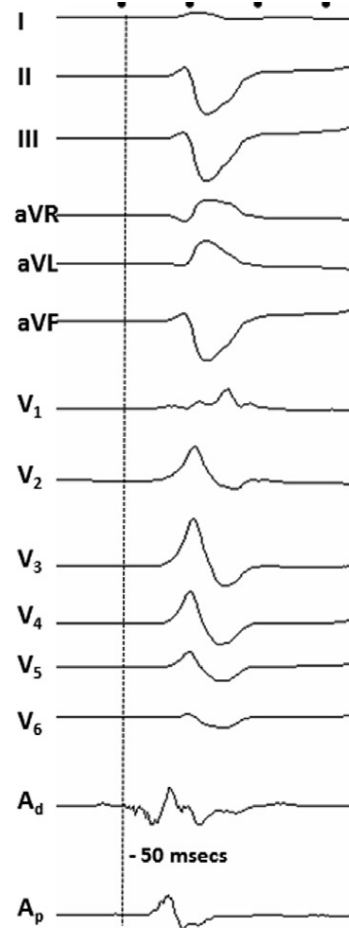
COMMENT AUGMENTER LE SUCCES DE PROCEDURE?



QUE FAUT-IL CHERCHER?

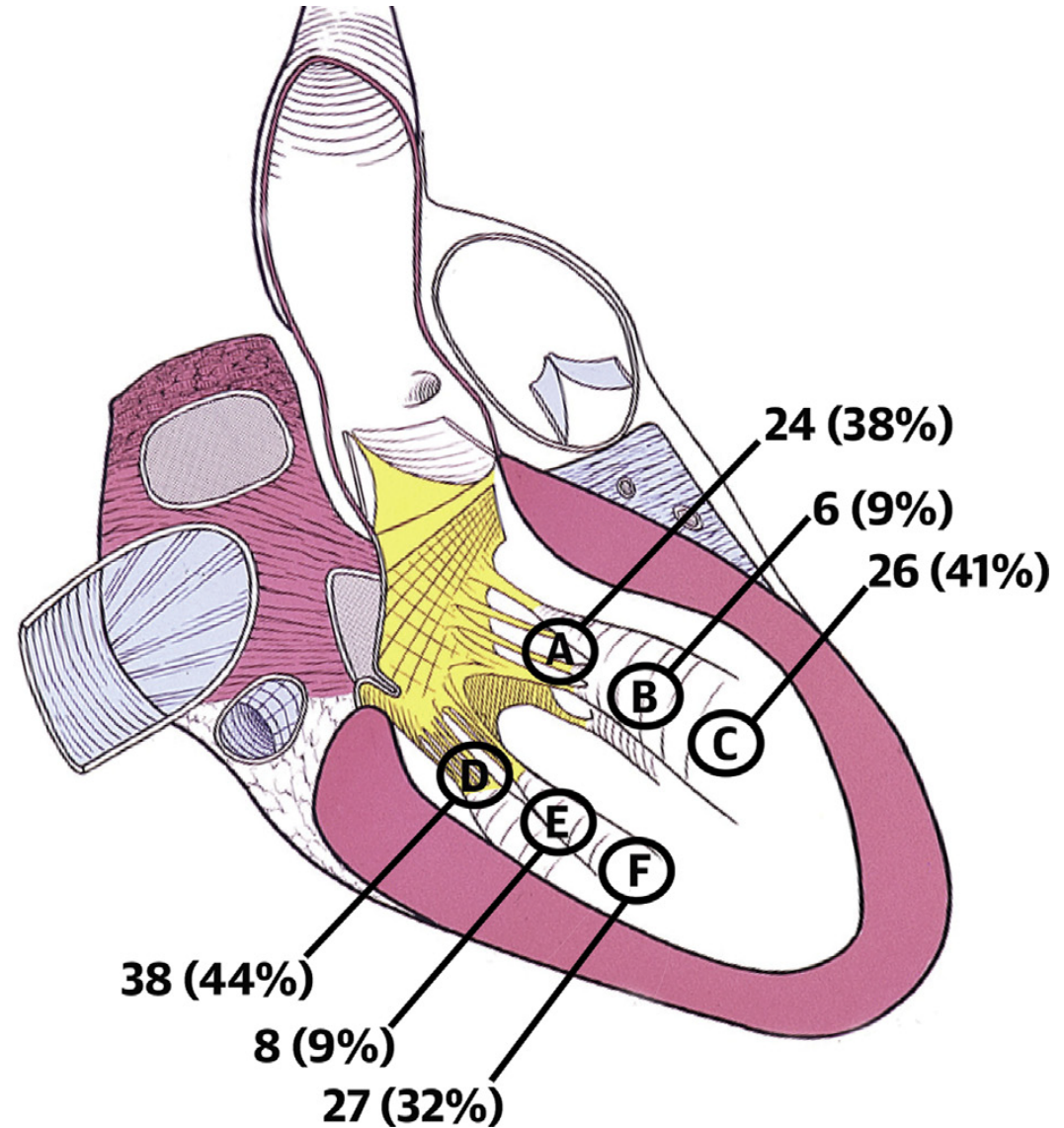
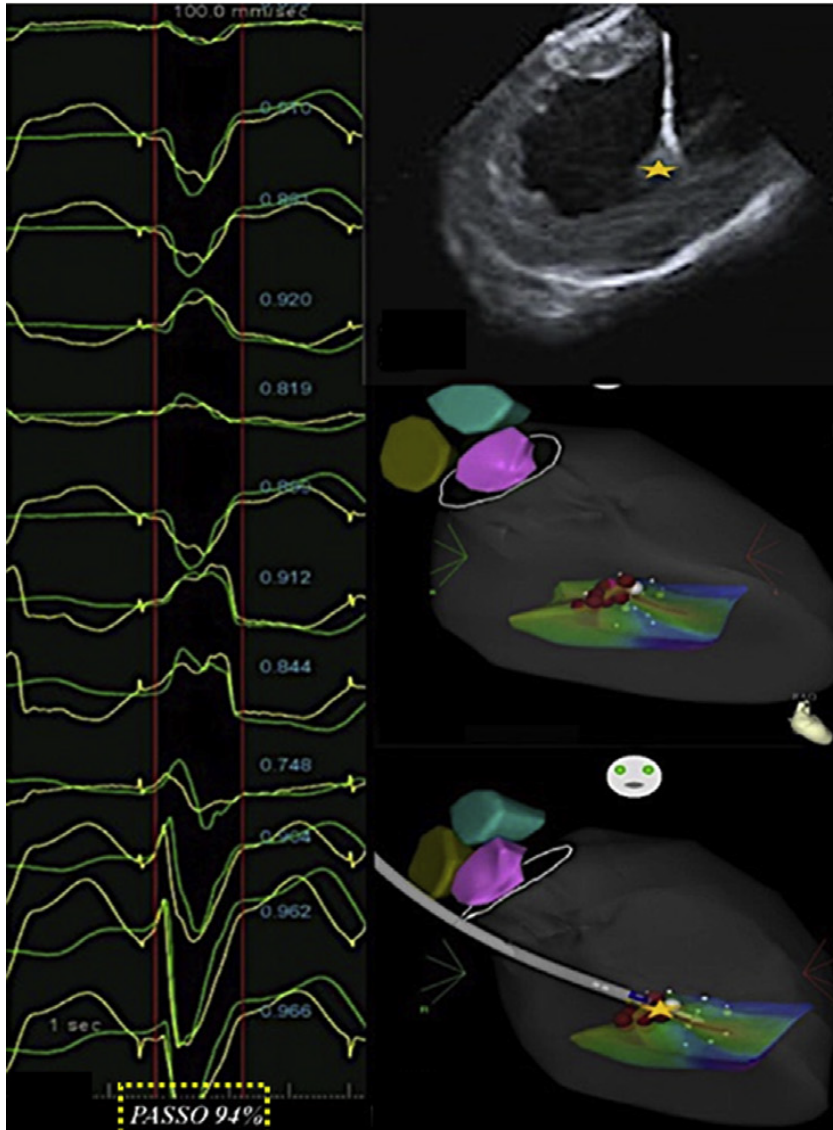


Précession bipolaire 25/70



Déplacement d'exit

QUE FAUT-IL CHERCHER?



RESULTATS DANS UN CENTRE TRES EXPERIMENTE

	Overall (N = 137)	CF (n = 97)	Non-CF (n = 40)	p Value
LV PAP VA target				0.06
Anterolateral PAP	51 (37)	31 (32)	20 (50)	
Posteromedial PAP	73 (53)	54 (56)	19 (48)	
Both PAPs	13 (10)	12 (12)	1 (2)	
Multiple morphology from LV PAP	27 (20)	22 (16)	5 (4)	0.17
Location targeted on the PAP				0.48
Tip	62 (41)	41 (38)	21 (52)	
Body	14 (10)	10 (9)	4 (10)	
Base	53 (35)	41 (38)	11 (27)	
Entire PAP	21 (14)	16 (15)	5 (12)	
Energy source				0.07
Radiofrequency	121 (88)	88 (64)	33 (24)	
Adjuvant cryotherapy	16 (12)	9 (7)	7 (5)	
Total number of ablation lesions	14 ± 10	14 ± 10	13.8 ± 10	0.88
≤5	25 (20)	18 (14)	7 (6)	
6-10	35 (28)	24 (19)	11 (9)	
11-20	36 (29)	25 (20)	11 (9)	
≥20	29 (23)	22 (17)	7 (6)	
Total RF duration, min	23 ± 21	24 ± 21	20 ± 20	0.39
Total procedure time, min	235 ± 92	227 ± 85	256 ± 108	0.10
Total fluoroscopy time, min	19 ± 15	17 ± 13	23 ± 18	0.06

	Overall (N = 137)	CF (n = 97)	Non-CF (n = 40)	p Value
Acute success				
LV PAP VA (1st procedure)	130/137 (95)	91/97 (94)	38/40 (95)	0.78
Other non LVA PAP VA (1st procedure)	48/53 (91)	37/40 (93)	11/13 (85)	0.40
LV PAP VA (2nd procedure)	15/15 (100)	9/9 (100)	6/6 (100)	
Long term success				
Single ablation LV PAP VA	112/137 (82)	81/97 (84)	31/40 (78)	0.41
Repeat ablation LV PAP VA	13/15 (87)	8/9 (89)	5/6 (83)	0.76
PVC burden				
Pre-procedure, %	24 ± 14	23 ± 14	27 ± 13	0.23
Post-procedure, %	3.5 ± 7	3.6 ± 7	3.4 ± 5.3	0.91
Complication, %	5 (3.6)	3 (2)	2 (1.6)	0.60

5% de complications dont une dissection aortique et 2 tamponnades.

Plus que dans les ESV bénignes

LE RISQUE SUR LA FONCTION MITRALE

TABLE 5 Mitral Valve Function Preablation and Postablation

MR Grade	Preablation	Postablation	P Value
0	36	36	0.98
1	49	51	
2	17	15	
3	1	1	

TABLE 6 Comparison of Mitral Valve Function by Ablation Lesion Characterization

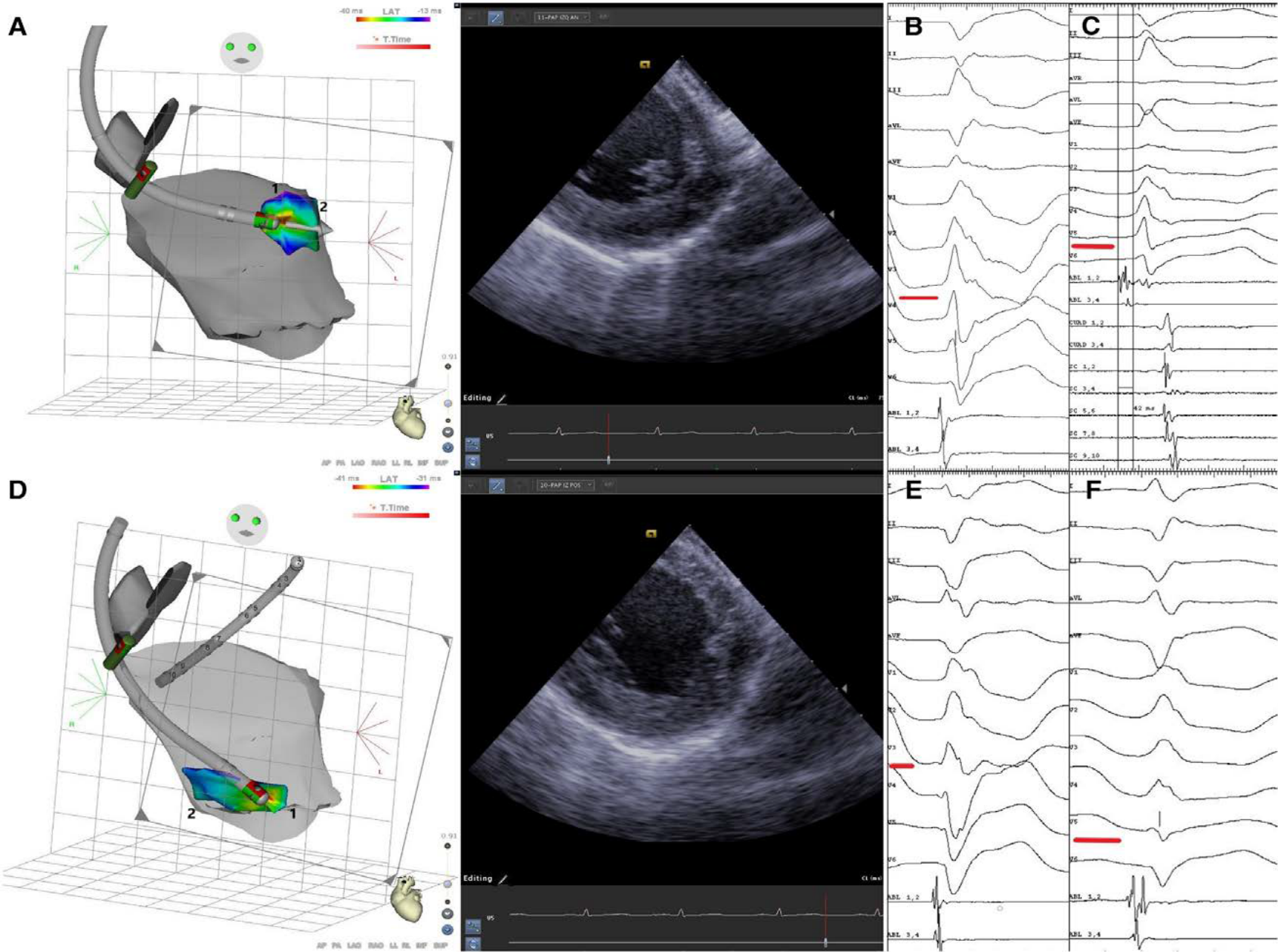
	No Change	Improved by 1 Grade	Improved by 2 Grades	Worsened by 1 Grade	P Value
Change in mitral valve function and RF ablation time					
RF time					
<1,001	24	7	1	4	0.44
1,001-2,000	15	8	0	5	
>2,000	12	1	0	4	
Total	51	16	1	13	
Change in mitral valve function and lesions delivered					
Number of lesions					
<6	13	3	0	1	0.77
6-10	14	4	1	6	
11-20	17	6	0	6	
>20	15	4	0	5	
Total	59	17	1	18	

TABLE 7 Comparison of Mitral Valve Function by PAP Characterization

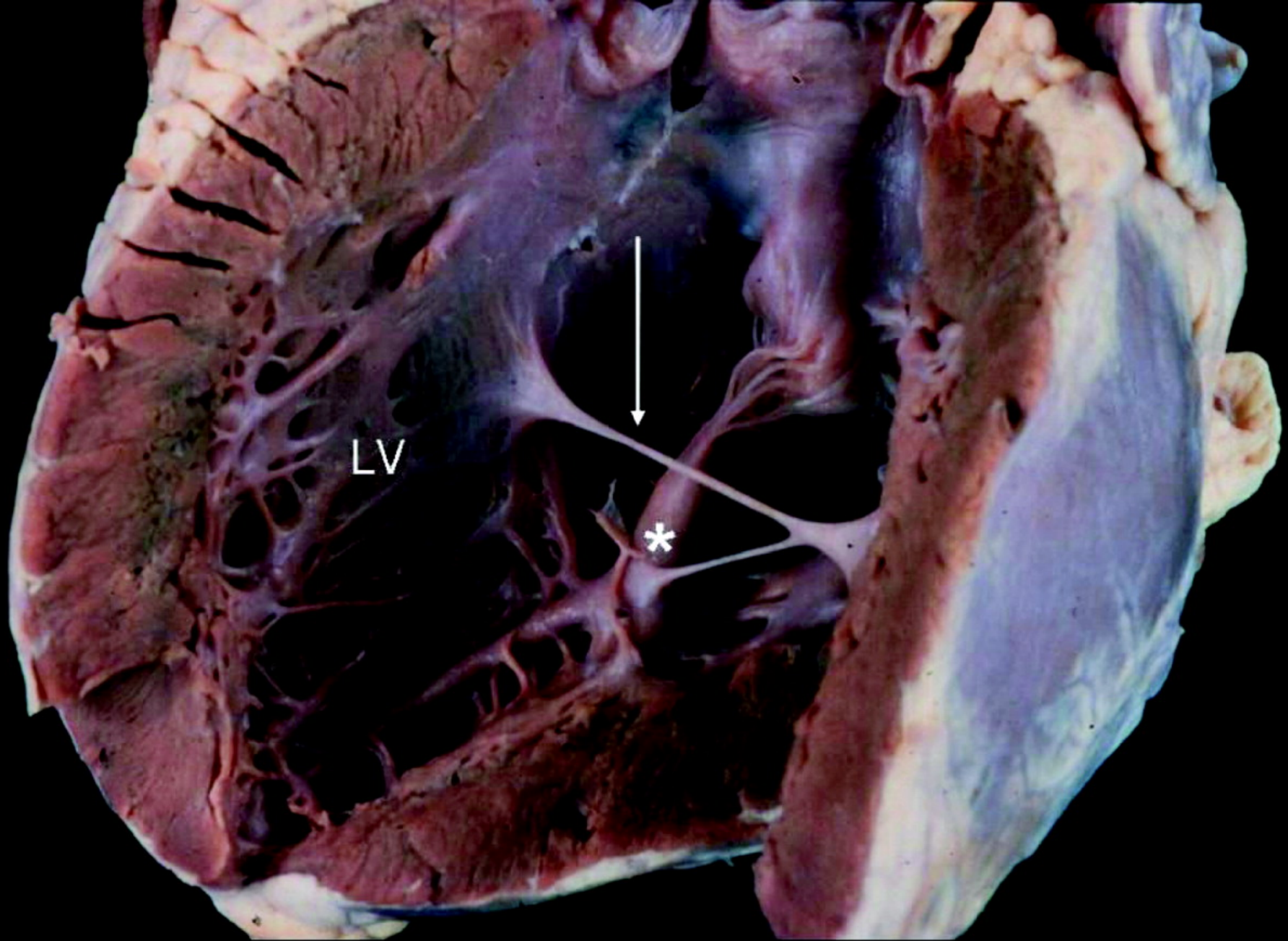
	No Change	Improved by 1 Grade	Improved by 2 Grades	Worsened by 1 Grade	P Value
Change in mitral valve function and PAP type					
PAP type					
Anterolateral	23	6	0	7	0.96
Posteromedial	34	11	1	11	
Both	7	2	0	1	
Total	64	19	1	19	
Change in mitral valve function and PAP segment ablated					
PAP segment					
Tip	31	12	0	9	0.78
Body	10	2	0	1	
Base	21	4	1	8	
Whole	2	1	0	1	
Total	64	19	1	19	
PAP = papillary muscle.					

CONCLUSIONS

- Procédure d'ablation très difficile mais assez safe
- Taux de succès corrects au prix
 - => De procédures longues
 - => Équipées d'une imagerie de qualité (ICE/ETT)
 - => Conversion éventuelle en cryo



11
anat 2



COMMENT AUGMENTER LE SUCCES DE PROCEDURE?

